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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Bernard Dieny

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ALEXANDRIA, VA 22314

EXAMINER

FALASCO, LOUIS V

ART UNIT

PAPER NUMBER

1773

DATE MAILED: 08/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/961,255	<b>Applicant(s)</b> DIENY, BERNARD	
	<b>Examiner</b> Louis Falasco	<b>Art Unit</b> 1773	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 April 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *PAPERS RECEIVED*

1. The Amendment and Remarks filed 4/19/04 are acknowledged.

### *CLAIMS*

2. The claims are: 1 to 12.

### ***Claim Rejections - 35 U.S.C. §103***

*The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.*

3. Claims 1 to 12 are rejected under 35 U.S.C. §103(a) as being unpatentable over **Swagten et al** (Physical Review B vol. 53 Nov 14 pp 9108 - 9114) or **Singleton et al** (US 2002/001207) - either on taken with **Ikarashi et al** (US 6210810) or **Fukuzawa et al** (US 6338899).

**Swagten et al** and **Singleton et al** are cited for reasons of record (i.e., final rejection mailed 7/11/2003). Applicants' Amendment and Remarks of 4/19/04 contend the instant claims are distinguished from the teachings of **Swagten et al** and

**Singleton et al** by the amendment of 4/19/05 limiting the claims to the conductive reflective nonmagnetic layer being *directly in* contact with a spin valve magnetic layer (re: last complete paragraph of page 5 Amendment Remarks of 4/19/04 and Examiner's Interview of 09/05/03 noted in the interview summary page 2). However **Ikarashi et al** and **Fukuzawa et al** (newly cited) teach the worker of ordinary skill to modify a spin valve in a record play head by teaching the layer of conductive nonmagnetic layer *directly in* contact with a magnetic layer (**Ikarashi et al**: as illustrated at Fig. 1 layer 33 col. 8 lns 38,39; Fig. 3 conductive layer 48 col. 10 lns 21-26; and show directly contact at least one magnetic layer as a known convention in the spin valve art at Fig 20 as shown by layer 29, col. 2 lns 47,48; and **Fukuzawa et al**: as illustrated at Fig 5 teaching the reflective conductive composition layer 101 in direct contact with magnetic free layer 110; also see Fig 6 with layer 121 in direct contact with magnetic free layer 129; Fig. 26 non-magnetic layers; or either of layers 3 or 4 in Figs. 32/33/34/39-42; or as layer 147 in Fig. 50-52; col. 2 lns 53-56; col. 3 lns 3-7, 21-26, 33, 34; col. 5 lns 7-10; col. 13 lns 45, 46; col. 22 lns 43-46; col. 23 lns 8,9).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have one of the conductive nonmagnetic layer in *direct* contact with the magnetic layers in the spin valve as shown by **Ikarashi et al** or by **Fukuzawa et al**, in the spin valve in either **Swagten et al** or **Singleton et al**. **Ikarashi et al** and **Fukuzawa et al** teach the direct contact configuration to effectively generate the magnetoresistive effect, required for a spin valve. One skilled in the art would have

been motivated to adopt the nonmagnetic layer in a spin valve as shown by **Ikarashi et al** or **Fukuzawa et al** with the expectation of increasing the responsiveness of the head enhancing the magnetoresistive effect of the spin valve as seen in **Ikarashi et al** note the RH curve of Fig. 11 and see col. 3 ln 65 – col. 4 ln 4 or in **Fukuzawa et al** see col. 2 lns 55-58 and col. 6 lns 13-21; Table 2.

As to claim 4 thickness for the reflective, conductive layer see **Ikarashi et al** col. 8 lns 41, 42 **Fukuzawa et al** Fig. 3, col. 3 ln 44; col. 14 lns 63,64; col. 30 ln 9.

As to claim 3 materials for the reflective, conductive layer see **Ikarashi et al** col. 10 lns 43, 44; **Fukuzawa et al** layer 101; col. 29 ln 18

## ***Double Patenting Rejections***

### ***Basis***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1 to 12 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 to 9, and 13 to 21 of U.S. Patent No. **6532164**.

U.S. Patent No. **6532164** claims a magnetic device layers including an electrically conductive, nonmagnetic layer between a first and second magnetic layers, where the first and second magnetic layers has a "magnetization direction". U.S. Patent No. **6532164** claims a *magnetic device* this claimed device is *defined* in the disclosure as a "spin valve device" (e.g., col. 1 lns 26-29). At the interface with the nonmagnetic layer is a layer with a reflective (claims 8) a character as defined<sup>1</sup> at (col. 4 lns 8-10, 29, col. 5 lns 3-10), also configuration having the identical character is claimed in U.S. Patent No. **6532164** claims 4, 6.

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<sup>1</sup> Patent disclosure cited is not cited as prior art additions, analogous to the non-obviousness requirement of 35 U.S.C 103 (1846 of *General Foods Corp. v. Studiengesellschaft Kohle mbH*, 972 F.2d 1272, 1279, 23 USPQ2d 1839 Fed. Cir. 1992), but is cited for defining terms in the claims.

As regards claim 2, 5, 10, 11 - claim 4, claim 8, see U.S. Patent No. **6532164** and conducting layers of claim 9 see U.S. Patent No. **6532164** also the definition of this claimed feature defined at Fig. 5 of U.S. Patent No. **6532164** having alternating magnetic and conductive layers.

As regards claims 2, 3 - see claims 9, 16 of U.S. Patent No. **6532164**.

As regards the dimensions of claims 4: these would have been a matter of routine optimization based on the degree of pinning effect desired for a particular system. That effect is the same as taught in U.S. Patent No. **6532164**, i.e., the uniaxial magnetic anisotropy defined at col. 4 lns 35-39<sup>2</sup> of U.S. Patent No. **6532164**, to achieve a *spin* required by the invention claimed in U.S. Patent No. **6532164** a magneto-resistive effect.

As regards the protective layer of claim 7: the device claimed in U.S. Patent No. **6532164** includes a shielding layer corresponding to the protective layer claimed in instant claim 7 as defined<sup>3</sup> in col. 4 lns 66, 67.

5. Claims 1 to 12 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 to 10 of U.S. Patent No. **6462641**.

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<sup>2</sup> General Foods Corp. v. Studiengesellschaft Kohle mbH, 972 F.2d 1272, 1279, 23 USPQ2d 1839.

<sup>3</sup> General Foods Corp. v. Studiengesellschaft Kohle mbH, 972 F.2d 1272, 1279, 23 USPQ2d 1839.

U.S. Patent No. **652164** claims a magnetic device layers including an electrically conductive, nonmagnetic layer between a first and second magnetic layers, with the first and second magnetic layers having a magnetization direction. U.S. Patent No. **6462641** claims a magnetic device. That claimed magnetic device is *defined* in the disclosure as forming a *Spin valve device* (col. 4 lns 9-16 of U.S. Patent No. **6462641**). The conductive, nonmagnetic reflective layer is in direct contact with the magnetic layers. This character for this layer is defined<sup>4</sup> at col. 4 lns 21-23 of U.S. Patent No. **6462641** for producing the *tunneling effect* claimed in claim 10 of U.S. Patent No. **6462641**.

As regards claim 2, 5, 10, 11: see Fig. 1 conductive layer 30 defining the *conductive* character col. 6 lns 19-23, 46-48 of the device claimed in U.S. Patent No. **6462641** for the tunnel effect claimed at claim 10 of U.S. Patent No. **6462641**.

As regards claims 2, 3: see material defined in claims at 1 to 10 of U.S. Patent No. **6462641** for the magnetic layer<sup>5</sup> at col. 5 lns 41, 42.

As regards the dimensions of claim 4: see claims 3 and 10 of U.S. Patent No. **6462641**.

As regards the protective layer of claim 7: the conductive ends of the magnetic sensor claimed in claim 9 of U.S. Patent No. **6462641** these are provided to shield the magnetoresistance device element from destruction, and so equivalent to the instant claimed protective layer.

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<sup>4</sup> General Foods Corp. v. Studiengesellschaft Kohle mbH, 972 F.2d 1272, 1279, 23 USPQ2d 1839.

<sup>5</sup> General Foods Corp. v. Studiengesellschaft Kohle mbH, 972 F.2d 1272, 1279, 23 USPQ2d 1839.



CONCLUSION

The claims are 1 to 12.

- No claim has been allowed.

INQUIRES

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Louis Falasco, PhD whose telephone number is (571)272-1507. The examiner can normally be reached on M-F 10:30 - 7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol D. Chaney, PhD can be reached at (571)272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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CAROL CHANEY  
SUPERVISORY PATENT EXAMINER